

a first width transverse to its reentrant slot centerline in a region of the peripheral edge and a second slot width transverse to its reentrant slot centerline in a region spaced inwardly, toward the deflector axis, relative to the region of the peripheral edge, the second width being greater than the first width. More preferably, the sprinkler further comprises an apex element, the deflector is mounted to the apex element, and an innermost portion of each of the reentrant slots extends inwardly toward the deflector axis to be no further outward from the deflector axis than an outermost surface of the apex element, and, preferably, the innermost portions of the reentrant slots extend inwardly toward the deflector axis to underlie the apex element, relative to fluid flow direction from the outlet. The reentrant slot centerlines extend radially outward from the deflector axis. The sprinkler is suited for installation up to 18 inches below a ceiling. The deflector has a thickness measured from the first surface in the direction of fluid flow equal to or greater than about 0.06 inch. The reentrant slots comprise a plurality of reentrant slots comprising at least a first type of reentrant slot and a second type of reentrant slot, reentrant slots of the first type extending from the first surface through the deflector with the slot openings at an outer peripheral edge of the deflector body, each of the reentrant slots of the first type extending inwardly from the peripheral edge, along the reentrant slot centerlines, generally toward the deflector axis, to a first type length, reentrant slots of the second type extending through the deflector from the first surface, with the slot openings at the peripheral edge of the deflector body, each of the reentrant slots of the second type extending inwardly from the peripheral edge, along the reentrant slot centerlines, generally toward the deflector axis, to a second type length, and the innermost portions of the reentrant slots of the first type extending inwardly toward the deflector axis to be no further outward from the deflector axis than the outermost surface of the apex element. Preferably, each of the reentrant slots of the first type has a first width transverse to its slot centerline in a region of the peripheral edge and a second width transverse to its slot centerline in a region spaced inwardly, toward the deflector axis, relative to the region of the peripheral edge, the second width of the first type slots being greater than the first width of the first type slots, and each of the reentrant slots of the second type has a first width transverse to the slot centerline in a region of the peripheral edge and a second width transverse to the slot centerline in a region spaced inwardly, toward the deflector axis, relative to the region of the

peripheral edge, the second width of the second type slots being greater than the first width of the second type slots. The first type length is equal to or greater than the second type length. The reentrant slot centerlines of the reentrant slots of the first type extend substantially radially outward from the deflector axis. The reentrant slot centerlines of the reentrant slots of the second type extend substantially radially outward from the deflector axis. The reentrant slots of the first type comprise at least two pairs of generally opposing reentrant slots. The reentrant slots of the second type comprise at least two pairs of generally opposing reentrant slots. The first type length of the reentrant slots of the first type is substantially the same. The second type length of the reentrant slots of the second type is substantially the same. The reentrant slots of the first type define reentrant portions having an elongated shape. The reentrant slots of the second type define reentrant portions having a pear-shape. A reentrant slot of the second type is located between reentrant slots of the first type. --

Please replace the paragraph beginning at page 15, line 3, with the following rewritten paragraph:

--Referring to Fig. 3, a deflector 21 of the invention for use in pendent-type fire protection sprinkler 10 has an outside diameter,  $D_1$ , e.g., a uniform value of about 1.75 inches. The deflector 21 has a thickness of about 0.09 inch, and it is fabricated from a phosphor bronze alloy UNS52100, per ASTM B103, with a Rockwell B Scale hardness of about 92. The diameter of deflector 21 is optimized to provide, from a predetermined height, a particular spray pattern over a desired area to be protected from fire. The outside diameter is limited by the volume of fire retardant fluid, and by the size of the orifice. Moreover, where cost is a consideration, increasing the size of the deflector diameter requires the thickness of deflector 21 to be increased in order to ensure that it has sufficient rigidity to withstand the force of the discharged stream of fluid. --

Please replace the paragraph beginning at page 16, line 13, with the following rewritten paragraph:

Referring to Fig. 4, a spray pattern for a commercial ESFR fire protection sprinkler with the deflector 21 having reentrant slots 29 is illustrated. The reentrant slots 29 result in a spray pattern 2 in which the spray direction is altered towards a center main axis 3 of a sprinkler 4. In particular, the reentrant slots 29 of the deflector result in formation of a central core 6 of spray pattern 2, with tines of the deflector resulting in formation of an outer shell 8 of spray pattern 2. In particular, the central core portion 6 of the spray pattern 2 has fluid droplets with greater momentum (i.e. mass times velocity), at relatively lower inlet pressures, than provided by prior art sprinklers of similar purpose.